IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant:	Siamak Naghian
Title:	SIGNAL PROPAGATION DELAY ROUTING
Appl. No.:	10/526,565
Filing Date:	04/05/2005
Examiner:	Pablo N. Tran
Art Unit:	2618
Confirmation Number:	8011

BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
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Dear Sir/Madam:

This Appeal Brief is being filed in response to a Notice of Panel decision from Pre-Appeal Brief review mailed October 15, 2010, in which the rejection of Claims 1-5, 7-21, 23-32, 35, and 36 is maintained. A Notice of Appeal was filed on August 12, 2010. As such, the submission of this Appeal Brief is timely filed with a one-month extension of time. This Appeal Brief is being filed together with a credit card payment of $670.00 covering the 37 C.F.R. § 41.20(b)(2) appeal fee and the one-month extension fee. If this fee is deemed to be insufficient, authorization is hereby given to charge any deficiency (or credit any balance) to the undersigned deposit account 19-0741. Appellant hereby respectfully requests reconsideration of the Application.

REAL PARTY IN INTEREST

The real party in interest is Spyder Navigation, L.L.C., the assignee of record, having a place of business at 1209 Orange Street, Wilmington, Delaware 19801 USA. The assignment to Spyder Navigation, L.L.C. was recorded in the records of the United States Patent and Trademark Office at Reel/Frame 019833/0099 on September 17, 2007.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that will directly affect, be directly affected by, or have a bearing on the present appeals, which are known to Appellant or Appellant's patent representative.

STATUS OF CLAIMS

Claims 6, 22, 33, and 34 were previously canceled. Claims 1-5, 7-21, 23-32, 35, and 36, which are in the Claims Appendix attached hereto, are currently pending in the application and stand rejected. Claims 1-5, 7-21, 23-32, 35, and 36 are the subject of this appeal.

STATUS OF AMENDMENTS

A Final Office Action was issued on May 12, 2010, a response to which was filed on July 12, 2010. No claim amendments were presented in the response. An Advisory Action was subsequently issued on September 5, 2010. A Notice of Appeal with a Pre-Appeal Brief was filed on August 12, 2010. A Notice of Panel decision from Pre-Appeal Brief review was mailed on October 15, 2010, in which the rejection of Claims 1-5, 7-21, 23-32, 35, and 36 was maintained. There are no claim amendments proposed by Appellant that have not been entered at this time.

SUMMARY OF CLAIMED SUBJECT MATTER

Three independent claims, Claims 1, 21, and 31, are under appeal. Independent Claims 21 and 31 include means-plus-function claim elements. Dependent Claim 2, which depends upon Claim 1, is argued separately from the independent claims. Dependent Claims 3-5, 23, 32, and 36 are also argued separately from the independent claims and dependent Claim 2. Dependent Claims 2-5, 23, and 32, which do not include any means-plus-function elements in addition to any recited in their respective independent claim, are not included in this section. A summary of Claim 36, which does include means-plus-function elements in addition to those recited in independent Claim 31, is included below. The citations included below are provided to illustrate specific examples and embodiments of the recited claims language, and are not intended to limit the claims.

Claim 1 is directed to a method of routing a message in a network comprising a plurality of notes, the method comprising: transmitting a first message (e.g., page 9, ll. 1-2) from a source node (e.g., Fig 2, element 1) to a destination node (e.g., Fig. 2, element 2) along a plurality of paths (e.g., page 9, ll. 1-2, Fig. 2, generally), wherein the plurality of paths include a first path (e.g., page 9, ll. 1-2, 5-9, Fig. 2, generally), and further wherein the first path includes a first intermediate node and a second intermediate node (e.g., Fig. 2, generally); generating a first time stamp and a second time stamp at the first intermediate node (e.g., page 9, ll. 15-19), wherein the first time stamp corresponds to receipt of the first message at the first intermediate node and the second time stamp corresponds to transmission of the first message from the first intermediate node to the second intermediate node (e.g., page 9, ll. 15-19); generating a third time stamp and a fourth time stamp at the second intermediate node (e.g., page 9, ll. 15-19), wherein the third time stamp corresponds to receipt of the first message at the second intermediate node and the fourth time stamp corresponds to transmission of the first message by the second intermediate node (e.g., page 9, ll. 15-19); calculating a propagation delay between the first intermediate node and the second intermediate node (e.g., page 11, l. 29 – page 12, l. 4), wherein the propagation delay comprises a difference between the second time stamp and the third time stamp (e.g., page 11, l. 29 – page 12, l. 4); and selecting the first path from the plurality of paths for communication between the source node and the destination

node based at least in part on the propagation delay (e.g., page 19, ll. 4-5, page 19 line 15 – page 20, line 15, Table 1, Signal Propagation Delay column).

Claim 21 is directed to an ad hoc wireless network, comprising: a plurality of nodes (e.g., Fig. 2, generally and elements 1, 2, and 3) that form a plurality of paths (e.g., Fig. 2, generally) between a source node (e.g., Fig. 2, element 1) and a destination node (e.g., Fig. 2, element 2), wherein the source node is configured to transmit a first message to the destination node along a first path of the plurality of paths (e.g., page 9, ll. 1-2, 5-9, Fig. 2, generally); a first intermediate node along the first path (e.g., Fig. 2, generally), wherein the first intermediate node is configured to generate a first time stamp corresponding to receipt of the first message at the first intermediate node and a second time stamp corresponding to transmission of the first message from the first intermediate node to a second intermediate node along the first path (e.g., page 9, ll. 15-19); the second intermediate node configured to generate a third time stamp corresponding to receipt of the first message at the second intermediate node (e.g., page 9, ll. 15-19); and selecting means configured to select the first path from said plurality of paths for communication between said source node and said destination node based at least in part on a propagation delay between the first intermediate node and the second intermediate node (e.g., page 19, ll. 4-5, page 19 line 15 – page 20, line 15, Table 1, Signal Propagation Delay column), wherein the propagation delay comprises a difference between the second time stamp and the third time stamp (e.g., page 11, l. 29 – page 12, l. 4).

Claim 31 is directed to a node in an ad hoc wireless network, said node comprising: means for receiving a message transmitted from a source node along a plurality of communication paths including a first communication path (page 7, ll. 10-12, Fig. 2, generally), wherein the first communication path includes a first intermediate node and a second intermediate node (e.g., Fig. 2, generally); means for identifying a first time that said message is received at the first intermediate node (e.g., page 9, ll. 15-19); means for identifying a second time that said message is transmitted from the first intermediate node to the second intermediate node (e.g., page 9, ll. 15-19); means for identifying a third time that the message is received at the second intermediate node (e.g., page 9, ll. 15-19), wherein the first time, the second time, and the third time are stored in a metrics field of the message (e.g., page 9, ll. 15-19, page 10, ll. 8-15); means for determining a propagation delay between the first intermediate

node and the second intermediate node (e.g., page 11, l. 29 – page 12, l. 4), wherein the propagation delay comprises a difference between the second time and the third time (e.g., page 11, l. 29 – page 12, l. 4); and means for selecting the first communication path for communication with the source node based at least in part on the propagation delay (e.g., page 19, ll. 4-5, page 19 line 15 – page 20, line 15, Table 1, Signal Propagation Delay column).

Claim 36 is directed to the node of claim 31, further comprising means for sending (page 7, ll. 10-12) a second message to the source node in response to the message (page 10, ll. 4-15), wherein the second message is sent along the first path (page 10, ll. 17-21).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Three grounds of rejection are presented for review in this appeal:

(1) Whether independent Claims 1, 21, and 31 and their associated dependent Claims 2-5, 7-20, 23-30, 32, 35, and 36 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,744,740 to Chen (hereinafter Chen) in view of U.S. Patent No. 4,569,042 to Larson (hereinafter Larson);

(2) Whether dependent Claim 2 is unpatentable under 35 U.S.C. § 103(a) over Chen in view of Larson; and

(3) Whether dependent Claims 3-5, 23, 32, and 36 are unpatentable under 35 U.S.C. § 103(a) over Chen in view of Larson.

ARGUMENT

I. LEGAL STANDARDS UNDER 35 U.S.C. § 103(a)

35 U.S.C. 103(a) states:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Obviousness under 35 U.S.C. 103(a) involves four factual inquiries: (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations, if any, of nonobviousness. See Graham v. John Deere Co., 383 U.S. 1 (1966).

In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a *prima facie* case of obviousness based upon the prior art. *In re Piasecki*, 745 F.2d 1468, 1471-72 (Fed. Cir. 1984).

According to M.P.E.P. § 706.02(j),

> 35 U.S.C. 103 authorizes a rejection where, to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action:
>
> (A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,
>
> (B) the difference or differences in the claim over the applied reference(s),
>
> (C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and

(D) an explanation >as to< why >the claimed invention would have been obvious to< one of ordinary skill in the art at the time the invention was made**.

** "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

II. INDEPENDENT CLAIMS 1, 21, AND 31 AND THEIR DEPENDENT CLAIMS WOULD NOT HAVE BEEN OBVIOUS BECAUSE THE APPLIED REFERENCES FAIL TO DISCLOSE, TEACH, OR SUGGEST THE COMBINATION OF ELEMENTS RECITED IN CLAIMS 1, 21, AND 31.

On page 2 of the Final Office Action, Claims 1-5, 8-11, 13-15, 19-21, 23-25, 27-29, 31, 32, 35, and 36 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Chen in view of Larson. Appellant notes that Claim 7 appears to be rejected on the same grounds. On page 5 of the Final Office Action, Claims 12, 16, and 26 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Chen in view of Larson and in further view of U.S. Patent No. 6,115,580 to Chuprun *et al.* (hereinafter Chuprun). Later on page 5 of the Final Office Action, Claims 17, 18, and 30 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Chen in view of Larson and in further view of U.S. Patent No. 4,873,517 to Baratz *et al.* (hereinafter Baratz). Appellant respectfully requests that the Board reverse these rejections.

A. The combination of Chen in view of Larson fails to disclose the claimed "calculating a propagation delay between the first intermediate node and the second intermediate node."

Claim 1 recites in part:

> calculating a propagation delay **between the first intermediate node and the second intermediate node**, wherein

> the propagation delay comprises a difference between the second time stamp and the third time stamp;

(Emphasis added). Claims 21 and 31, although of different scope, contain similar elements.

On page 2 of the Final Office Action, the Examiner acknowledges that Chen does not explicitly disclose a "method of timestamp of hopping one node to another node." Accordingly, Appellant submits that Chen does not teach the above claimed element.

In the Final Office Action, the Examiner cited to Figures 5a, 5b, and 5c; and Col. 1, l. 60 – Col. 2, l. 39, Col. 2, l. 46 – Col. 4, l. 28 of Larson as teaching a number of elements of Claim 1, including "calculating a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp." In the Advisory Action, in response to Appellant's argument that Larson does not teach "calculating a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp," the Examiner pointed to Col. 3, ll. 27-31 of Larson as teaching this element. Appellant respectfully submits that the Examiner is misapplying Larson and that Larson does not disclose "calculating a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp."

Col. 3, ll. 27-31, of Larson provides:

> Advantageously, then, the invention provides an efficient means for measuring the transmission delay time of a communication path. It measures both the inter-node transmission time as well as the intra-node delay time of a signal.

Appellant submits that Larson teaches measuring a single transmission delay time that is a combination of the inter-node transmission time and the intra-node delay time of a signal. Therefore, Appellant submits that Larson does not teach "calculating a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp."

Col. 2, ll. 48-58, of Larson briefly describes how a round-trip signal transmission delay is determined.

> According to this invention, the process of measuring the signal transmission delay through a transmission path involves **transmitting across the path in one direction a first signal indicating time of its transmittal** and, in response to receipt of the first signal, **transmitting across the path in the other direction a second signal indicating significantly the time of transmittal of the first signal**. The round-trip signal transmission delay is then determined as **the difference between the time of transmittal of the first signal and the time of receipt of the second signal**.

(Emphasis added).

Thus, Larson discloses a first signal that includes the time of its transmittal. A second signal is received, that contains the time of the first signal's transmission. The difference between the receipt of the second signal and the first signal's transmit time is calculated as the round-trip signal transmission delay.

Figure 3A of Larson illustrates in greater detail the process of calculating transmission delay between a source and a destination. Before the transmission delay can be calculated, a path must be established between a source and a terminal node. Col. 8, ll. 26-34 of Larson describes this process:

> When the terminal node 100 senses a call incoming from the subtending communicating equipment 120 and receives therefrom information about the destination of the call, it responds by setting up the call in a conventional manner, as suggested in blocks 300 and 301 of FIG. 3. Call set-up activities include generation and transmission to the network 10 of a call set-up packet to set up the physical path for the call through the network 10, as was described earlier.

Once the call path is set up, "the node 100 generates a first continuity packet and transmits it to the destination node 101 through the network 10, over the physical path that has just been set up for the call, as suggested in block 303." Larson, Col. 8, ll. 59-62. One function of the continuity packet is to "convey information that allows the terminal nodes 100 and 101 to determine the packet transit delay through the network 10 over the call path...." Larson, Col. 8,

ll. 64-66. The first continuity packet includes a time stamp field that "bears the reading of the clock 200 of the node 100 at time of transmission of the packet from the node 100." Larson, Col. 9, ll. 20-21. The "reading of the clock 200 of the node 100 at the time of transmission of the first continuity packet 500a is assumed to be t_0, as indicated in FIG. 5A." Larson, Col. 9, ll. 23-26.

After the transmission of the first continuity packet, "the node 100 awaits receipt of the second continuity packet 500b, as indicated in block 304." Larson, Col. 9, ll. 65-67. If the second continuity packet is received, "the node 100 disassembles the second continuity packet 500b, as indicated in block 305, to extract therefrom the contents of the time stamp field 503 and of the data field 504." Larson, Col. 10, ll. 8-11. The "node 100 uses the extracted contents of the time stamp field 503 of the second continuity packet 500b to generate a third continuity packet, which it transmits to the node 101, as suggested in block 306." Larson, Col. 10, ll. 11-15. The time the third continuity packet is transmitted to the node 101 "is assumed to be t_2, as indicated in FIG. 5B." Larson, Col. 10, ll. 26-27.

Once the second continuity packet is received and the third continuity packet is transmitted, the transmission delay can be calculated. As disclosed in Larson, the transmission delay is derived from a difference in clocks of nodes 101 and 102. *See* Col. 11, l. 31. A "difference calculator 204 uses the inputs to calculate the asynchrony between the clock 200 of the node 100 and the clock of the node 101, as indicated in block 308." Larson, Col. 10, ll. 43-46. The disclosed formula for this calculation is:

$A_0 = \frac{t_2 + t_0}{2} - t_1$, Col. 10, l. 50.

"The delay calculator 205 uses the asynchron A_0 in computing the transit delay undergone by packets in traversing the call path from the node 101 to the node 100." Larson, Col. 11, ll. 25-28. The disclosed formulate for this calculation is:

$D_0 = t_y - A_0 - t_x$, Col. 11, l. 31.

When calculating the delay transmission between the node 100 and the node 101, and substituting the asynchrony formula into the delay formula, the delay formula becomes:

$D_0 = \frac{t_2 - t_0}{2}$, Col. 11, l. 48, *See also* Col. 11, ll. 44-45.

Accordingly, the transmission delay between a source and destination node is the difference between the transmission time of the third continuity packet and the transmission time of the first continuity packet divided in half. As noted above, the transmission delay is a calculation of "the transit delay undergone by packets in traversing the call path from the node 101 to the node 100." Larson, Col. 11, ll. 26-28. Therefore, the transit delay described in Larson, inherently includes "both the inter-node transmission time as well as the intra-node delay time...." Col. 3, ll. 29-31. That is, as the transmission delay described in Larson is calculated using time stamps generated at the source node, the transmission delay calculated includes both the delay in transmitting a packet between each of the various nodes in the path as well as the time each node takes to process the packet. As it is impossible for the disclosed calculation to determine each of these values for each node separately, Larson is, therefore, silent in regard to calculating the inter-node transmission time independently from the intra-node delay time.

Appellant submits that calculating a transit delay, using only time stamps from a source node, where the transit delay is a measure of the combined inter-node transmission time and the intra-node delay time cannot be considered analogous to the claimed "**calculating a propagation delay between <u>the first intermediate node and the second intermediate node</u>**, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp." (Emphasis added).

Appellant respectfully submits that neither Chuprun nor Baratz cures the deficiencies of Chen and Larson, in that each reference also fails to disclose, teach, or suggest the claimed "calculating a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp."

Chuprun is directed to a "system that is capable of determining an optimal path through a wireless communications network using terrain information for a region of interest." Col. 2, ll. 2-5. On page 5 of the Final Office Action, the Examiner relied on Chuprun merely for its alleged

disclosure of selecting an optimal path based upon velocity. However, Chuprun fails to disclose, teach, or suggest "calculating a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp."

Baratz is directed to "allowing a network node to calculate an optimal end node to end node route through a network when the network topology database maintained at the network nodes contains only information about network nodes and transmission groups interconnecting those nodes." Col. 2, ll. 36-41. On page 4 of the Final Office Action, the Examiner relied upon Baratz merely for its alleged disclosure of "using a routing algorithm to weight a parameter based on a priority value, wherein selecting the path for communication between the source node to the destination node is based at least in part on the weighted parameter." However, Baratz fails to disclose, teach, or suggest "calculating a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp."

For at least the reasons discussed above, Appellant respectfully submits that Chen, Larson, Chuprun, and Baratz, alone or in combination, fail to disclose, teach, or suggest the claimed "calculating a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp." Appellant therefore respectfully requests the Board reverse the rejections of Claims 1-5, 7-21, 23-32, 35, and 36 under 35 U.S.C. § 103(a).

III. DEPENDENT CLAIM 2 WOULD NOT HAVE BEEN OBVIOUS BECAUSE THE APPLIED REFERENCES FAIL TO DISCLOSE, TEACH, OR SUGGEST THE CLAIMED COMBINATION OF ELEMENTS RECITED IN CLAIM 2.

Claim 2 in part recites "transmitting a second message from the destination node to the source node ... along the plurality of paths." In the Final Office Action, the Examiner did not point to any section of Chen or Larson as disclosing this feature. In the Advisory Action, the Examiner asserted that Col. 10, l. 50 of Chen teaches this claimed element. Appellant respectfully disagrees.

Col. 10, ll. 47 - 51 of Chen provides: "When the 'Path Discovery' packets reach the destination node, the destination node will pick the most optimum path (i.e., shortest # of hops, shortest time, or some other metric) and **send a 'Path Update' message back to the Source Node <u>through the picked path</u>**." (Emphasis added). Appellant respectfully submits that sending a 'Path Update' message through a single picked path cannot be considered analogous to the claimed "transmitting a second message from the destination node to the source node ... along the plurality of paths."

Further, Appellant submits that no other portion of Chen discloses such a claimed element. Chen is generally directed to "establishing a network within a plurality of interconnected and randomly geographically located nodes, such as wireless devices." Abstract. Chen describes the network including a number of nodes that "can route information (relay) messages to other nodes in the network." Col. 3, ll. 64-65.

Col. 9, l. 57 – Col. 10, l. 51 of Chen describes a problem of a "stuck" packet and a solution.

> It is possible in the wireless network to have a packet arrive at a node and the destination is not listed in its Zone Routing Table, and none of its neighbors are closer to the destination than itself. In such case, the packet is "stuck" in the node. This situation can be resolved by doing a path discovery around the "hole" and add an entry in the Zone Routing Table for the destination node, which shown in FIGS. 12A-12D. Thus, in the system 10, upon a packet reaching a first Node 3 from source Node 9 in the plurality of nodes and the packet is unable to locate a path to the destination Node 5, as shown in FIG. 12A, the Node 3 transmits several "path discovery" packets to several neighbors who are closest to the destination Node 5, as shown in FIG. 12B. **<u>The destination node 5 then transmits a "path update" packet back to the first node to thereby provide the first node with the optimal path for the packet, as shown in FIG. 12C.</u>** More particularly, the node that the packet is "stuck" in sends several "Path Discovery" messages, shown in FIG. 13, to a limited number of neighbors who are closest to the destination. The "stuck" node will add an entry in its "Zone Routing Table" with the destination node's Logical ID and position. It will leave the "Next-hop Node" and the "Time Stamp" entries empty for now. For example, Table 3 illustrates an updated Zone Routing Table with the lower entries added from path discovery.

> The neighbors, after receiving the "Path Discovery" message, will check to see if it has received this Path Discovery packet before. If it has not, the neighbor will add the "Source Logical ID", "Dest. Logical ID", and the "Packet ID" to its temporary memory, and add its own ID to the "Sending Node ID" field at the end of the packet, add one to the "# of Past Nodes" field. If the destination node is in it's the neighbor's Zone Routing Table, the "Path Discovery" packet will be sent to the corresponding "Next-hop" node in the table. Otherwise, it will find an immediate neighbor whose distance is closest to the destination node and forwards the Path Discovery packet to that immediate neighbor. If the Path Discovery packet receiving node determines that it is the closest node to the destination node among its neighbors (in other words, the packet is "stuck" in this neighbor node as well), it will add an entry in its Zone Routing Table for the destination node (its ID, position, and the current time for the time stamp column for now), then forwards the Path Discovery packet to a few other neighbor nodes who are closest to the destination node. This process continues until the "Path Discovery" packet reaches the destination node.
>
> **When the "Path Discovery" packets reach the destination node, the destination node will pick the most optimum path (i.e., shortest # of hops, shortest time, or some other metric), and send a "Path Update" message back to the Source Node through the picked path.**
>
> (Emphasis added).

Thus, Larson describes a packet, being routed to a destination node, that is stuck at an intermediate node. When this occurs, a “Path Discovery” message is sent from the intermediate node to a number of neighbors. The destination node may receive multiple “Path Discovery” messages, and based upon these messages the destination node will pick a most optimum path. The destination node then sends a “Path Update” message back to the source node through the single picket path. This is clearly illustrated in Figure 12C of Larson, presented below, where node 5 is the destination node. The “Path Update” message travels through nodes 19, 21, 22, *etc.* However, 12C illustrates no message being sent through any other path, such as 17, 15, 13, etc.

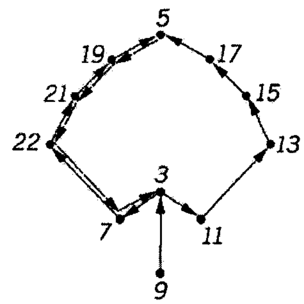

FIG. 12C

Appellant respectfully submits that sending a 'Path Update' message through a single picked path cannot be considered analogous to the claimed "transmitting a second message from the destination node to the source node ... **along the plurality of paths**." (Emphasis added).

Appellant further submits that Larson does not cure Chen's deficiency. Larson is directed toward "measuring the signal transmission delay through a transmission path." The transmission path is established during call setup. *See, e.g.,* Col. 8, ll. 58 - 62. As such, Larson "utilize[es] a signal that **must** pass end-to-end and then back **over the same communication path.**" (Emphasis added). Appellant submits that requiring the path from the destination to the source be the same communication path from the source to the destination is not the same as "transmitting a second message from the destination node to the source node ... along the plurality of paths."

Appellant therefore respectfully requests the Board reverse the rejection of Claim 2 under 35 U.S.C. § 103(a).

IV. THE EXAMINER HAS NOT ESTABLISHED A *PRIMA FACIE* CASE OF OBVIOUSNESS FOR CLAIMS 3-5, 23, 32, and 36.

On page 2 of the Final Office Action, the Examiner rejected Claims 3-5, 23, 32, and 36 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Chen in view of Larson. The

Examiner, however, failed to include any basis for the rejection of each of these claims, other than the general assertion that they are unpatenable over Chen in view of Larson.

On page 17 in the Response After Final, Appellant noted this defect of the Office Action. To help further prosecution, Appellant provided a detailed example regarding Claim 2.[1] In the Advisory Action, the Examiner responded to this defect by providing support for the rejection of **only** Claim 2. As noted above, Appellant respectfully disagrees with the Examiner's position in regard to Claim 2. In the Advisory Action the Examiner again failed to provide any support for the rejection of Claims 3-5, 23, 32, and 36.

37 C.F.R. § 1.104(c)(2) provides:

> **In rejecting claims for want of novelty or for obviousness**, the examiner must cite the best references at his or her command. **When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable**. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.

(Emphasis added).

Appellant submits that both Chen and Larson describe inventions that are not the same as those in the pending claim set. Further, Appellant submits that both Chen and Larson are complex disclosures requiring numerous figures and pages of disclosure. Accordingly, Appellant submits that the Examiner must designate the particular parts of Chen and Larson relied upon in rejecting Claims 3-5, 23, 32, and 36. For at least these reasons, Appellant respectfully requests the Board reverse the rejections of Claims 3-5, 23, 32, and 36. under 35 U.S.C. § 103(a).

[1] Claim 2 was rejected without any support in the Final Office Action.

CONCLUSION

In view of the foregoing discussion and arguments, Appellant respectfully submits that Claims 1-5, 7-21, 23-32, 35, and 36 are not properly rejected under 35 U.S.C. § 103(a). Accordingly, Appellant respectfully requests that the Board reverse all claim rejections and indicate that a Notice of Allowance respecting all pending claims should be issued.

Respectfully submitted,

Date December 8, 2010

By

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CLAIMS APPENDIX

1. (Previously Presented) A method of routing a message in a network comprising a plurality of nodes, the method comprising:

transmitting a first message from a source node to a destination node along a plurality of paths, wherein the plurality of paths include a first path, and further wherein the first path includes a first intermediate node and a second intermediate node;

generating a first time stamp and a second time stamp at the first intermediate node, wherein the first time stamp corresponds to receipt of the first message at the first intermediate node and the second time stamp corresponds to transmission of the first message from the first intermediate node to the second intermediate node;

generating a third time stamp and a fourth time stamp at the second intermediate node, wherein the third time stamp corresponds to receipt of the first message at the second intermediate node and the fourth time stamp corresponds to transmission of the first message by the second intermediate node;

calculating a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp; and

selecting the first path from the plurality of paths for communication between the source node and the destination node based at least in part on the propagation delay.

2. (Previously Presented) The method of claim 1, further comprising:

receiving the first message at the destination node; and

transmitting a second message from the destination node to the source node in response to the first message, wherein the second message is transmitted along the plurality of paths.

3. (Previously Presented) The method of claim 1, further comprising generating a fifth time stamp corresponding to receipt of the first message at a third intermediate node in communication with the second intermediate node.

4. (Previously Presented) The method of claim 3, further comprising calculating a second propagation delay, wherein the second propagation delay comprises a difference between the fourth time stamp and the fifth time stamp.

5. (Previously Presented) The method of claim 4, further comprising calculating an overall propagation delay of the first path based at least in part on a sum of the propagation delay and the second propagation delay, wherein the first path is selected based on the overall propagation delay of the first path.

6. (Canceled)

7. (Previously Presented) The method of claim 5, further comprising calculating a processing delay of the first intermediate node, wherein the processing delay comprises a difference between the first time stamp and the second time stamp, and further wherein the first path is selected based at least in part on the processing delay.

8. (Previously Presented) The method of claim 1, further comprising:

measuring a signal quality of the first message at the first intermediate node; and

selecting the first path for communication between the source node and the destination node based at least in part on the measured signal quality.

9. (Previously Presented) The method of claim 8, further comprising storing the measured signal quality in the first message.

10. (Previously Presented) The method of claim 1, further comprising:

calculating a distance between the first intermediate node and the second intermediate node; and

selecting the first path for communication between the source node and the destination node based at least in part on the calculated distance.

11. (Previously Presented) The method of claim 10, further comprising storing the calculated distance in the first message.

12. (Previously Presented) The method of claim 1, further comprising:

calculating a velocity of the first intermediate node; and

selecting the first path for communication between the source node and the destination node based at least in part on the calculated velocity.

13. (Previously Presented) The method of claim 1, further comprising:

measuring a power attribute of the first intermediate node; and

selecting the first path for communication between the source node and the destination node based at least in part on said measured power attribute.

14. (Previously Presented) The method of claim 1, further comprising:

assessing a link stability of the first path; and

selecting the first path for communication between the source node and the destination node based at least in part on said assessed link stability.

15. (Previously Presented) The method of claim 1, further comprising:

identifying a quality of service of the first message; and

selecting the first path for communication between the source node and the destination node based at least in part on the identified quality of service.

16. (Previously Presented) The method of claim 1, further comprising:

measuring a first position of the first intermediate node at a first time;

measuring a second position of the first intermediate node at a second time;

calculating a velocity of the first intermediate node using the first position and the second position;

storing the calculated velocity in the first message; and

selecting the first path for communication between the source node and the destination node based at least in part on said stored velocity.

17. (Previously Presented) The method of claim 1, further comprising using a routing algorithm to weight a parameter based on a priority value, wherein selecting the path for communication between the source node to the destination node is based at least in part on the weighted parameter.

18. (Previously Presented) The method of claim 1, further comprising using a mapping value to determine a degree to which a measured parameter value meets a predefined parameter value.

19. (Previously Presented) The method of claim 1, wherein said network is an ad hoc wireless network.

20. (Previously Presented) The method of claim 1, wherein the first intermediate node is a mobile station.

21. (Previously Presented) An ad hoc wireless network, comprising:

a plurality of nodes that form a plurality of paths between a source node and a destination node, wherein the source node is configured to transmit a first message to the destination node along a first path of the plurality of paths;

a first intermediate node along the first path, wherein the first intermediate node is configured to generate a first time stamp corresponding to receipt of the first message at the

first intermediate node and a second time stamp corresponding to transmission of the first message from the first intermediate node to a second intermediate node along the first path;

the second intermediate node configured to generate a third time stamp corresponding to receipt of the first message at the second intermediate node; and

selecting means configured to select the first path from said plurality of paths for communication between said source node and said destination node based at least in part on a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time stamp and the third time stamp.

22. (Canceled)

23. (Previously Presented) The ad hoc network of claim 21, wherein the propagation delay is stored in the first message.

24. (Previously Presented) The ad hoc network of claim 21, further comprising:

means for measuring a signal quality of the first message;

wherein said selecting means is further configured to select the first path for communication between the source node and the destination node based at least in part on said measured signal quality.

25. (Previously Presented) The ad hoc network of claim 21, further comprising:

processing means for calculating a distance between the first intermediate node and the second intermediate node;

wherein said selecting means is further configured to select the first path for communication between the source node and the destination node based at least in part on the calculated distance.

26. (Previously Presented) The ad hoc network of claim 21, further comprising:

processing means for calculating a velocity of the first intermediate node;

wherein said selecting means is further configured to select the first path for communication between the source node and the destination node based at least in part on the calculated velocity.

27. (Previously Presented) The ad hoc network of claim 21, further comprising:

means for measuring a power attribute of the first intermediate node;

wherein said selecting means is configured to select the first path for communication between the source node and the destination node based at least in part on said measured power attribute.

28. (Previously Presented) The ad hoc network of claim 21, further comprising:

means for determining a link stability of the first path;

wherein said selecting means is further configured to select the first path for communication between the source node and the destination node based at least in part on said link stability.

29. (Previously Presented) The ad hoc network of claim 21, further comprising:

means for identifying a quality of service of the first message;

wherein said selecting means is further configured to select the first path for communication between the source node and the destination node based at least in part on the quality of service.

30. (Previously Presented) The ad hoc network of claim 21, wherein:

said selecting means is configured to select a plurality of candidate routes;

said network further comprises mapping means for mapping said plurality of candidate routes to a plurality of quality of service classes; and

wherein said selecting means is further configured to select the first path from said plurality of candidate routes based at least in part on a quality of service of the first message.

31. (Previously Presented) A node in an ad hoc wireless network, said node comprising:

means for receiving a message transmitted from a source node along a plurality of communication paths including a first communication path, wherein the first communication path includes a first intermediate node and a second intermediate node;

means for identifying a first time that said message is received at the first intermediate node;

means for identifying a second time that said message is transmitted from the first intermediate node to the second intermediate node;

means for identifying a third time that the message is received at the second intermediate node, wherein the first time, the second time, and the third time are stored in a metrics field of the message;

means for determining a propagation delay between the first intermediate node and the second intermediate node, wherein the propagation delay comprises a difference between the second time and the third time; and

means for selecting the first communication path for communication with the source node based at least in part on the propagation delay.

32. (Previously Presented) The node of claim 31, wherein the first time corresponds to a first time stamp, the second time corresponds to a second time stamp, and the third time corresponds to a third time stamp.

33. (Canceled)

34. (Canceled)

35. (Previously Presented) The node of claim 31, further comprising means for calculating a distance between the first intermediate node and the second intermediate node based at least in part on the propagation delay.

36. (Previously Presented) The node of claim 31, further comprising means for sending a second message to the source node in response to the message, wherein the second message is sent along the first path.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.